FIG. 1

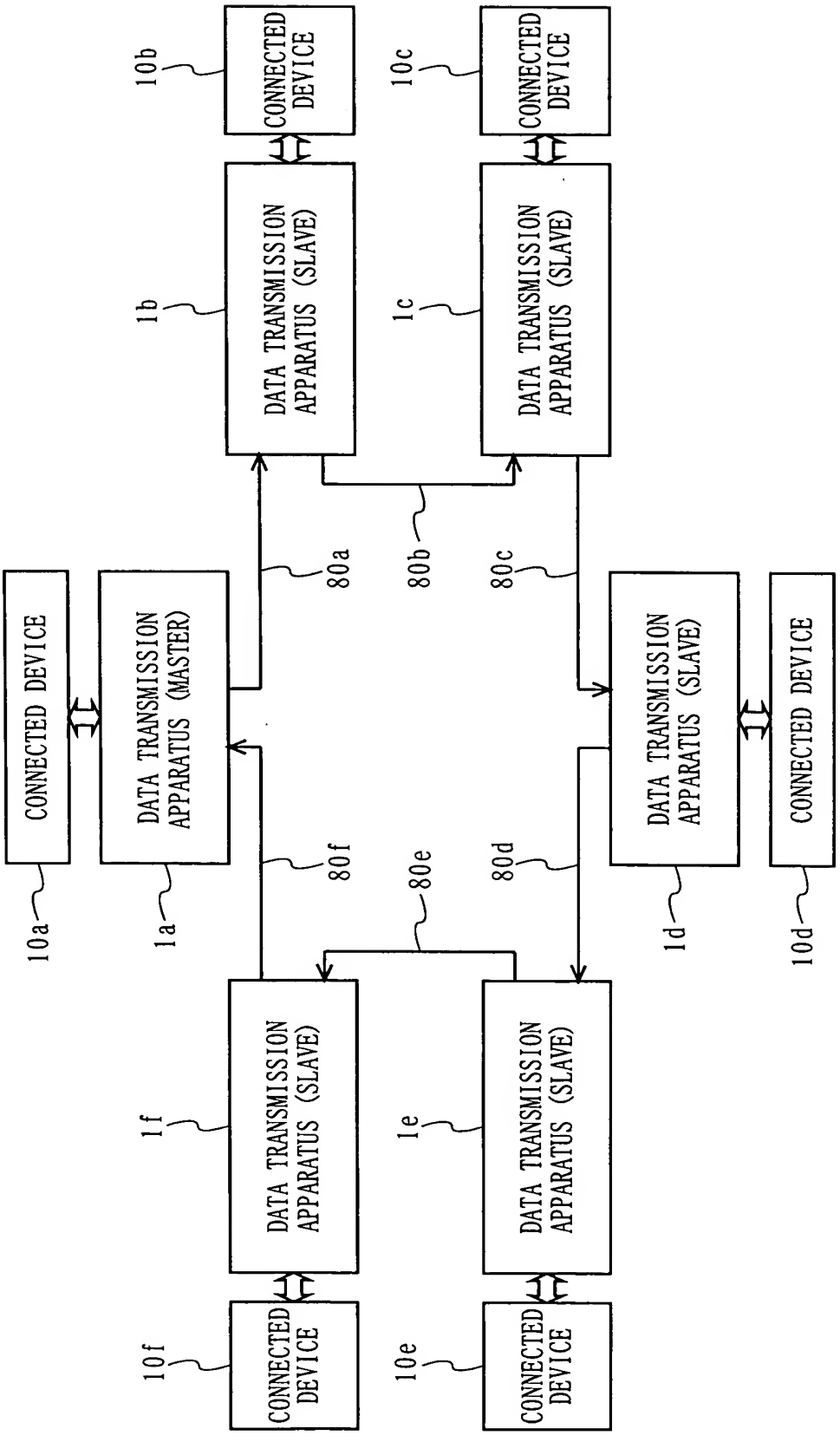
CONNECTED DEVICE
DATA TRANSMISSION APPARATUS (MASTER)
DATA TRANSMISSION APPARATUS (SLAVE)
10a
10b
10c
10d
10e
10f
1a
1b
1c
1d
1e
1f
80a
80b
80c
80d
80e
80f

FIG. 2

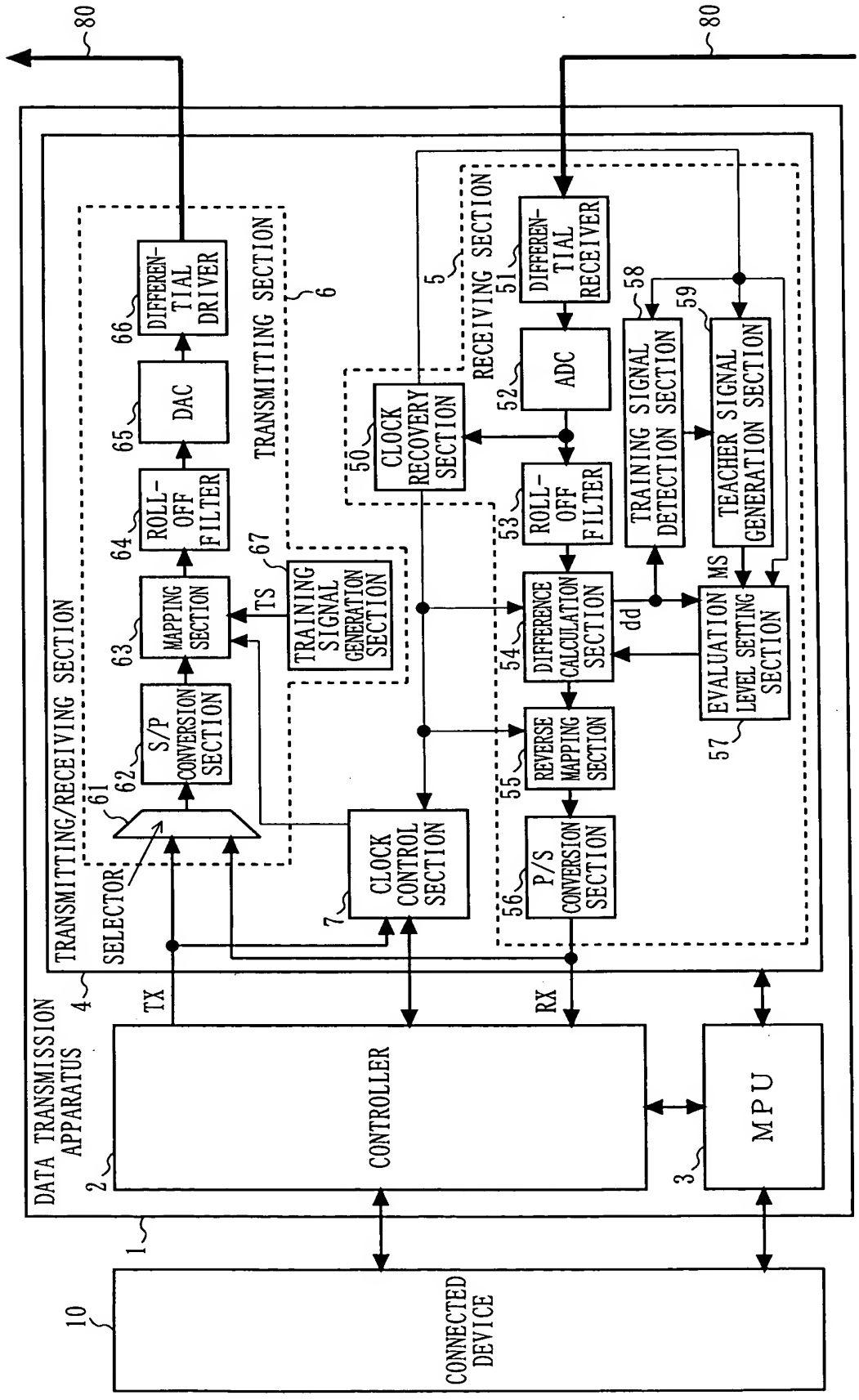
10
CONNECTED DEVICE
1
DATA TRANSMISSION APPARATUS
2
CONTROLLER
3
MPU
4
TRANSMITTING/RECEIVING SECTION
TX
RX
80
80
SELECTOR
61
62
S/P CONVERSION SECTION
63
MAPPING SECTION
64
ROLL-OFF FILTER
65
DAC
66
DIFFEREN-TIAL DRIVER
TRANSMITTING SECTION
6
TS
67
TRAINING SIGNAL GENERATION SECTION
7
CLOCK CONTROL SECTION
5
RECEIVING SECTION
50
CLOCK RECOVERY SECTION
51
DIFFEREN-TIAL RECEIVER
52
ADC
53
ROLL-OFF FILTER
54
DIFFERENCE CALCULATION SECTION
dd
55
REVERSE MAPPING SECTION
56
P/S CONVERSION SECTION
57
EVALUATION LEVEL SETTING SECTION
MS
58
TRAINING SIGNAL DETECTION SECTION
59
TEACHER SIGNAL GENERATION SECTION

FIG. 3

PREVIOUS SYMBOL B(k-1) \ TRANSMISSION SYMBOL B(k)	+7	+5	+3	+1	-1	-3	-5	-7
+7					00	10	11	01
+5					01	00	10	11
+3					11	01	00	10
+1					10	11	01	00
-1	00	10	11	01				
-3	01	00	10	11				
-5	11	01	00	10				
-7	10	11	01	00				

TRANSMISSION DATA

TRANSMISSION DATA

FIG. 4

TRANSMISSION DATA	DIFFERENCE VALUE RELATIVE TO PREVIOUS SYMBOL
10	+14
11	+12
01	+10
00	+8
10	+6
11	+4
01	+2
10	-2
11	-4
01	-6
00	-8
10	-10
11	-12
01	-14

F I G. 5

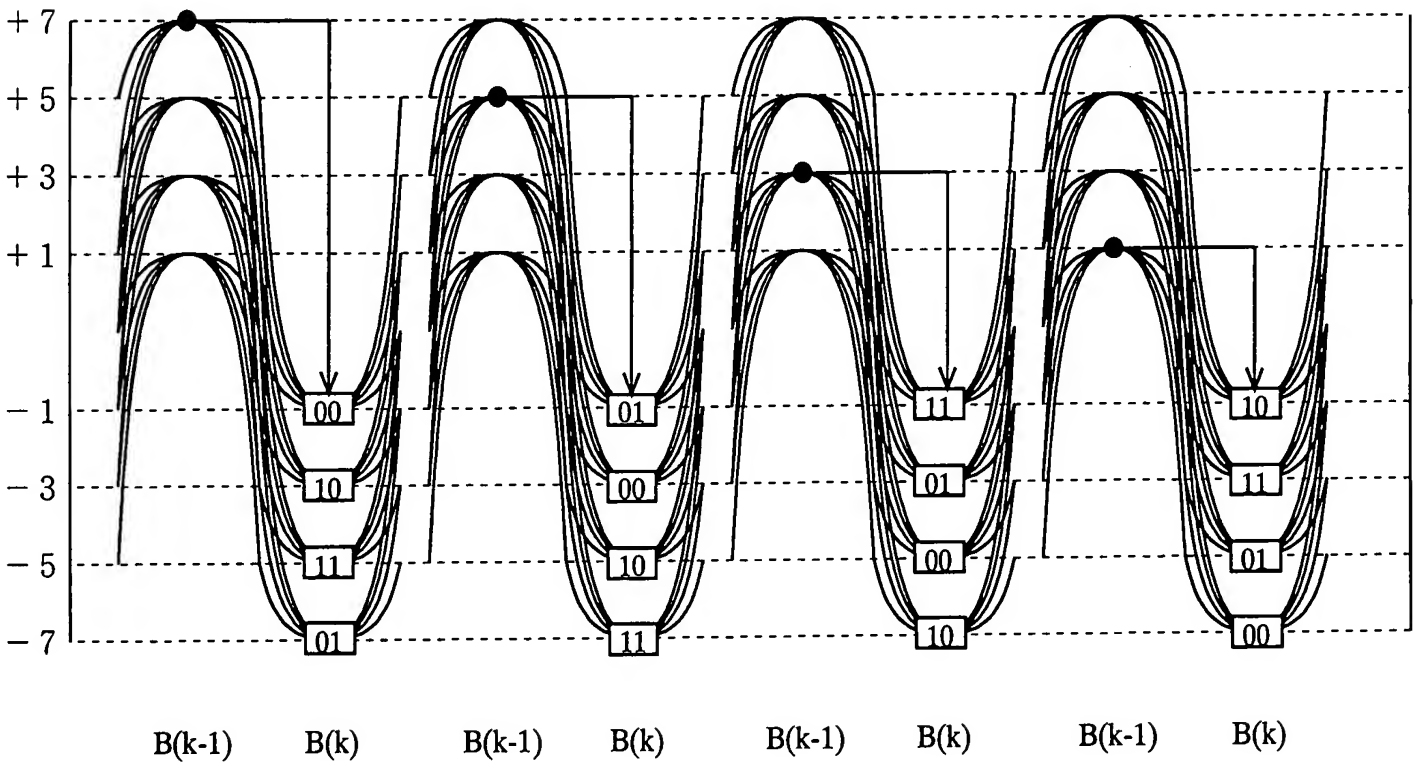
+7
+5
+3
+1
−1
−3
−5
−7
00
10
11
01
01
00
10
11
11
01
00
10
10
11
01
00
B(k-1)
B(k)
B(k-1)
B(k)
B(k-1)
B(k)
B(k-1)
B(k)

FIG. 6

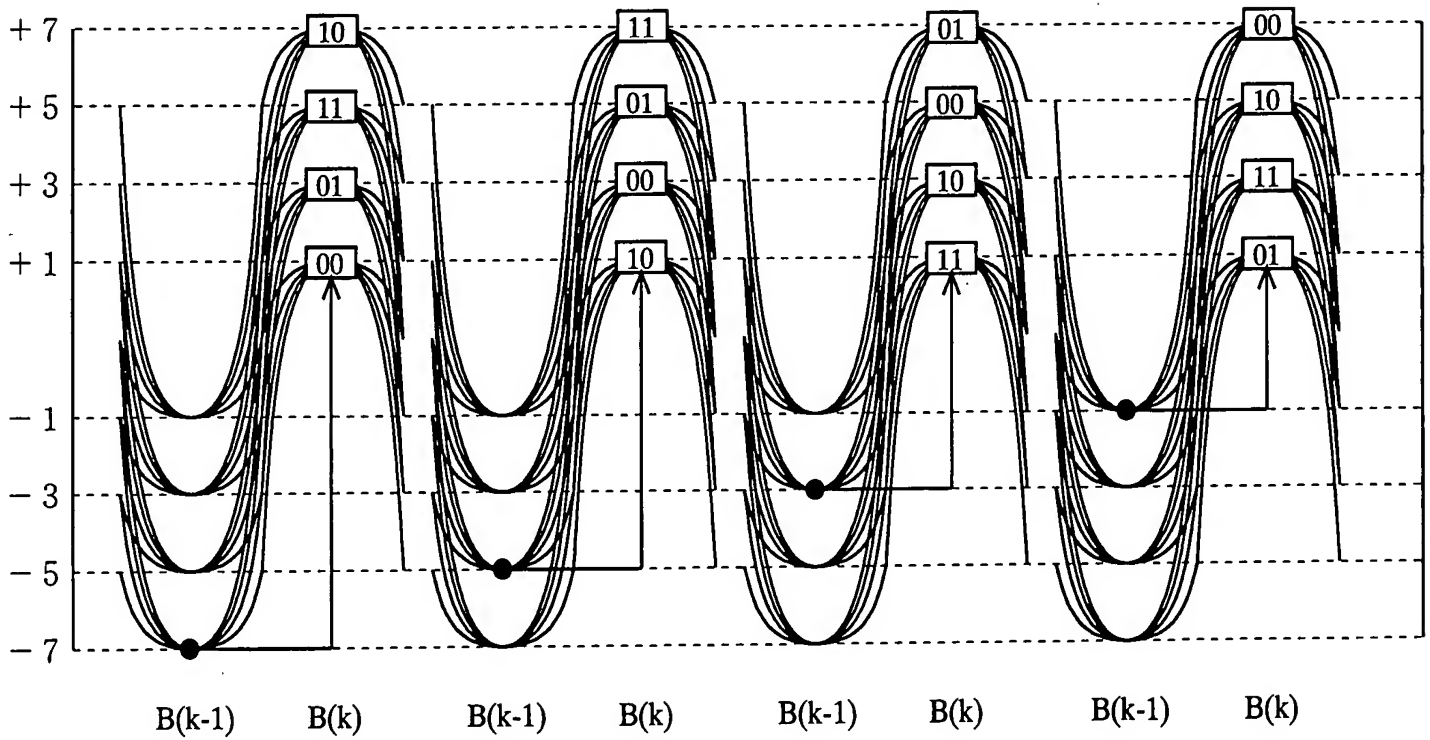
+7
+5
+3
+1
−1
−3
−5
−7
10
11
01
00
11
01
00
10
01
00
10
11
00
10
11
01
B(k-1)
B(k)
B(k-1)
B(k)
B(k-1)
B(k)
B(k-1)
B(k)

FIG. 7

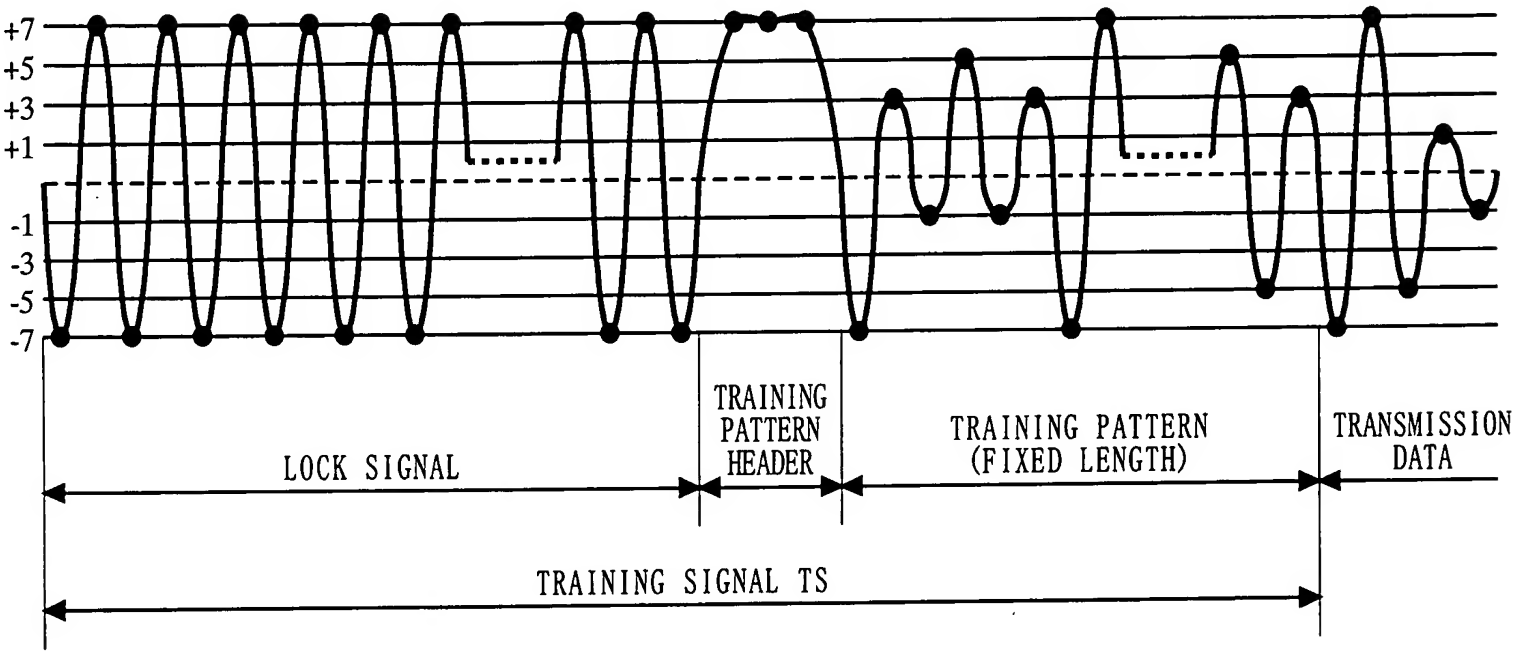
+7
+5
+3
+1
-1
-3
-5
-7
LOCK SIGNAL
TRAINING PATTERN HEADER
TRAINING PATTERN (FIXED LENGTH)
TRANSMISSION DATA
TRAINING SIGNAL TS

FIG. 8

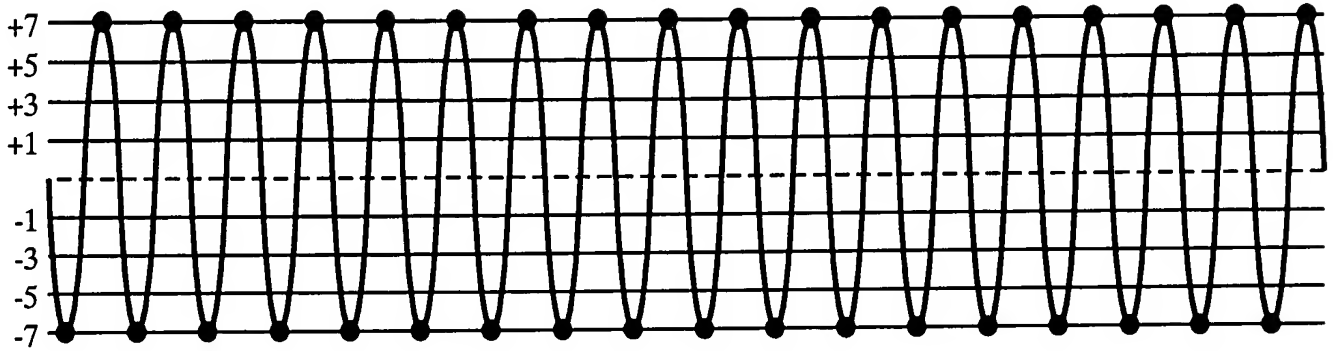

FIG. 9

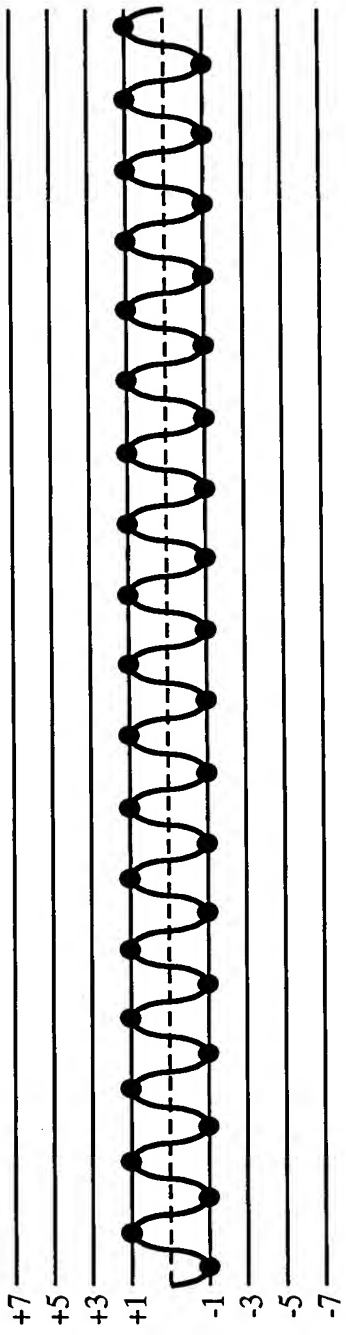

FIG. 10

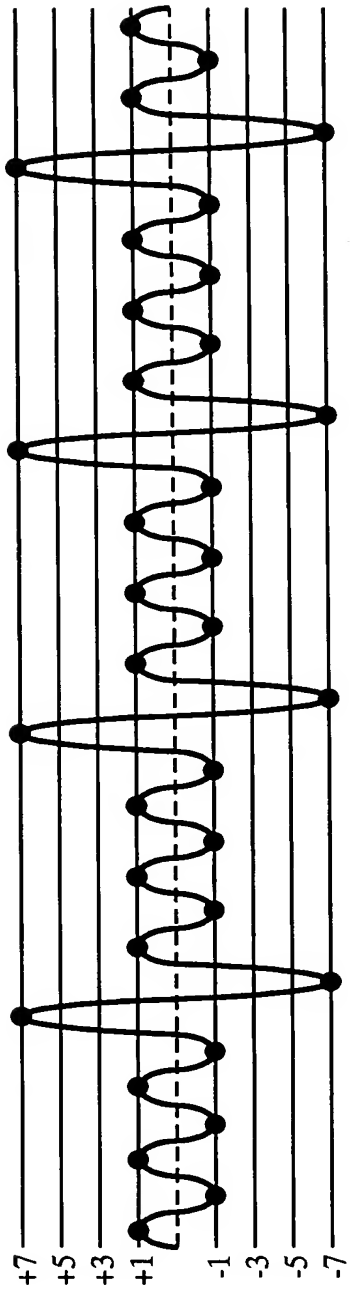

FIG. 11

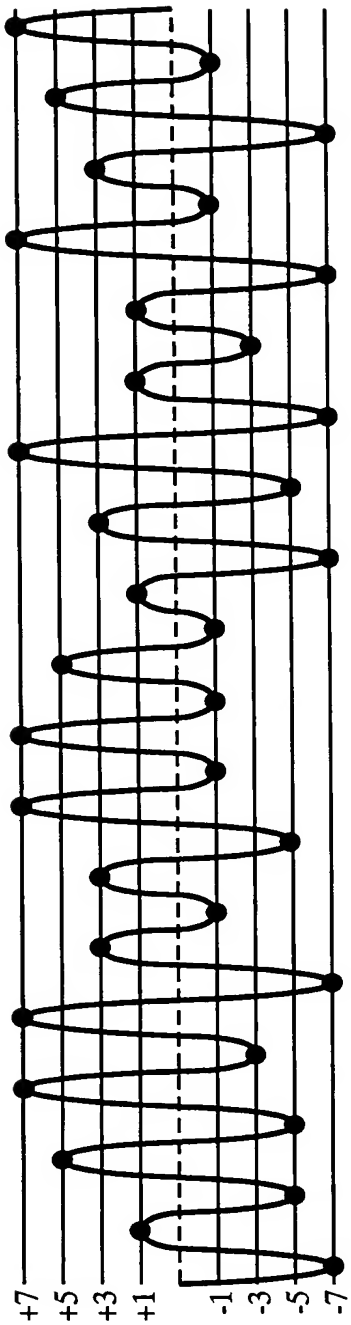

FIG. 12

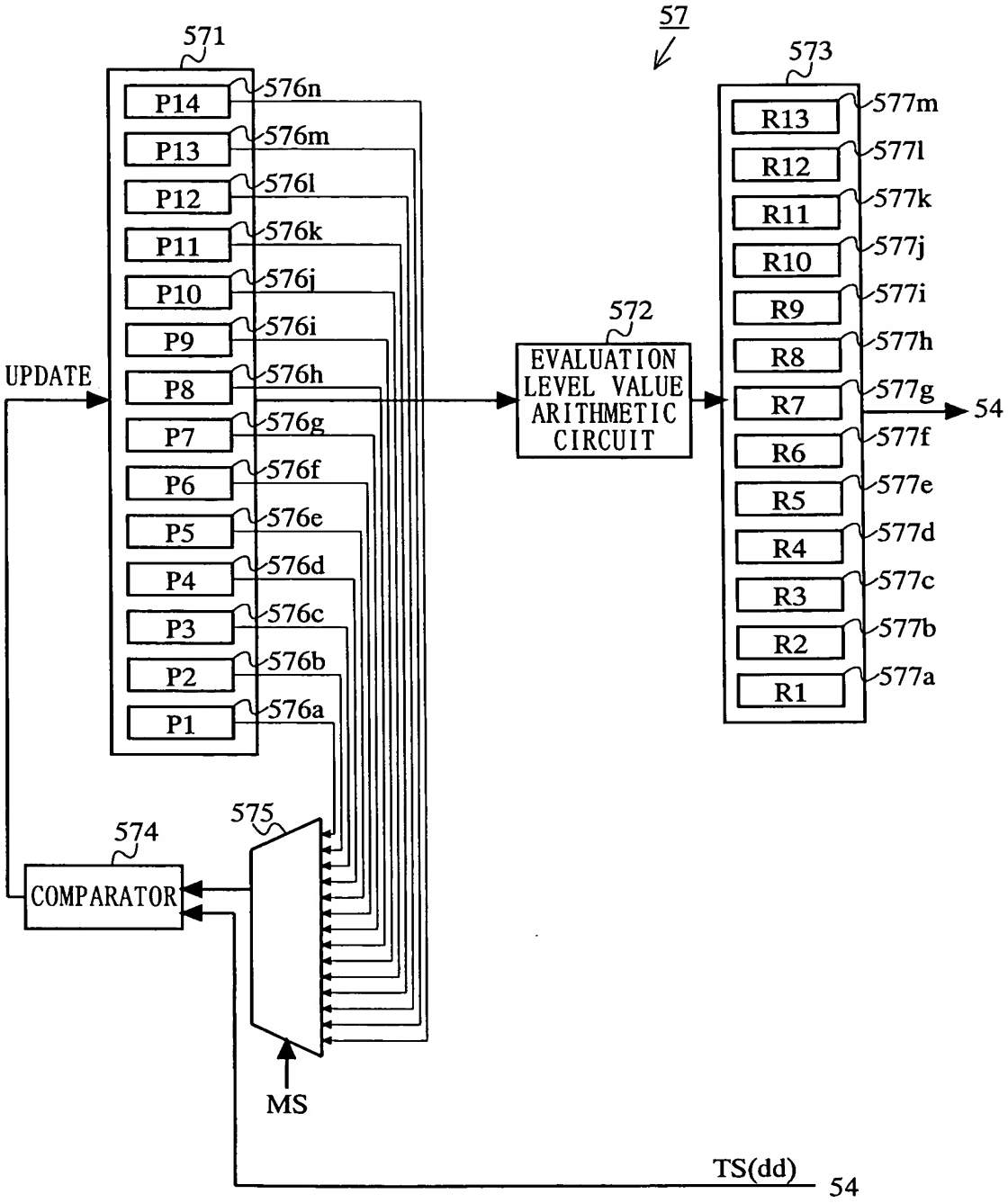
57
571
573
P14
P13
P12
P11
P10
P9
P8
P7
P6
P5
P4
P3
P2
P1
576n
576m
576l
576k
576j
576i
576h
576g
576f
576e
576d
576c
576b
576a
UPDATE
572
EVALUATION LEVEL VALUE ARITHMETIC CIRCUIT
R13
R12
R11
R10
R9
R8
R7
R6
R5
R4
R3
R2
R1
577m
577l
577k
577j
577i
577h
577g
577f
577e
577d
577c
577b
577a
54
574
COMPARATOR
575
MS
TS(dd)
54

FIG. 13

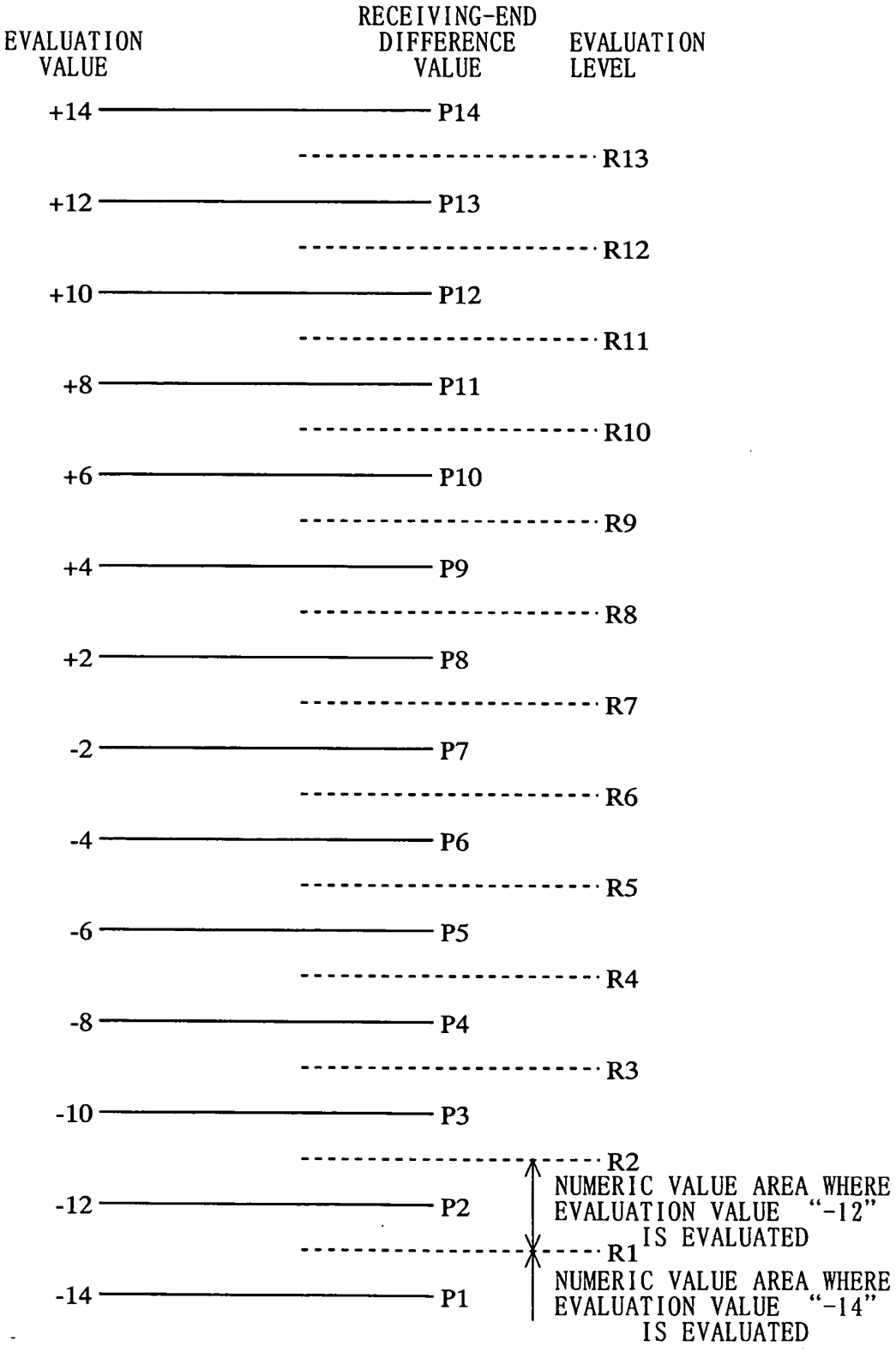
EVALUATION VALUE
RECEIVING-END DIFFERENCE VALUE
EVALUATION LEVEL
+14
P14
R13
+12
P13
R12
+10
P12
R11
+8
P11
R10
+6
P10
R9
+4
P9
R8
+2
P8
R7
-2
P7
R6
-4
P6
R5
-6
P5
R4
-8
P4
R3
-10
P3
R2
-12
P2
R1
-14
P1
NUMERIC VALUE AREA WHERE EVALUATION VALUE "-12" IS EVALUATED
NUMERIC VALUE AREA WHERE EVALUATION VALUE "-14" IS EVALUATED

FIG. 14

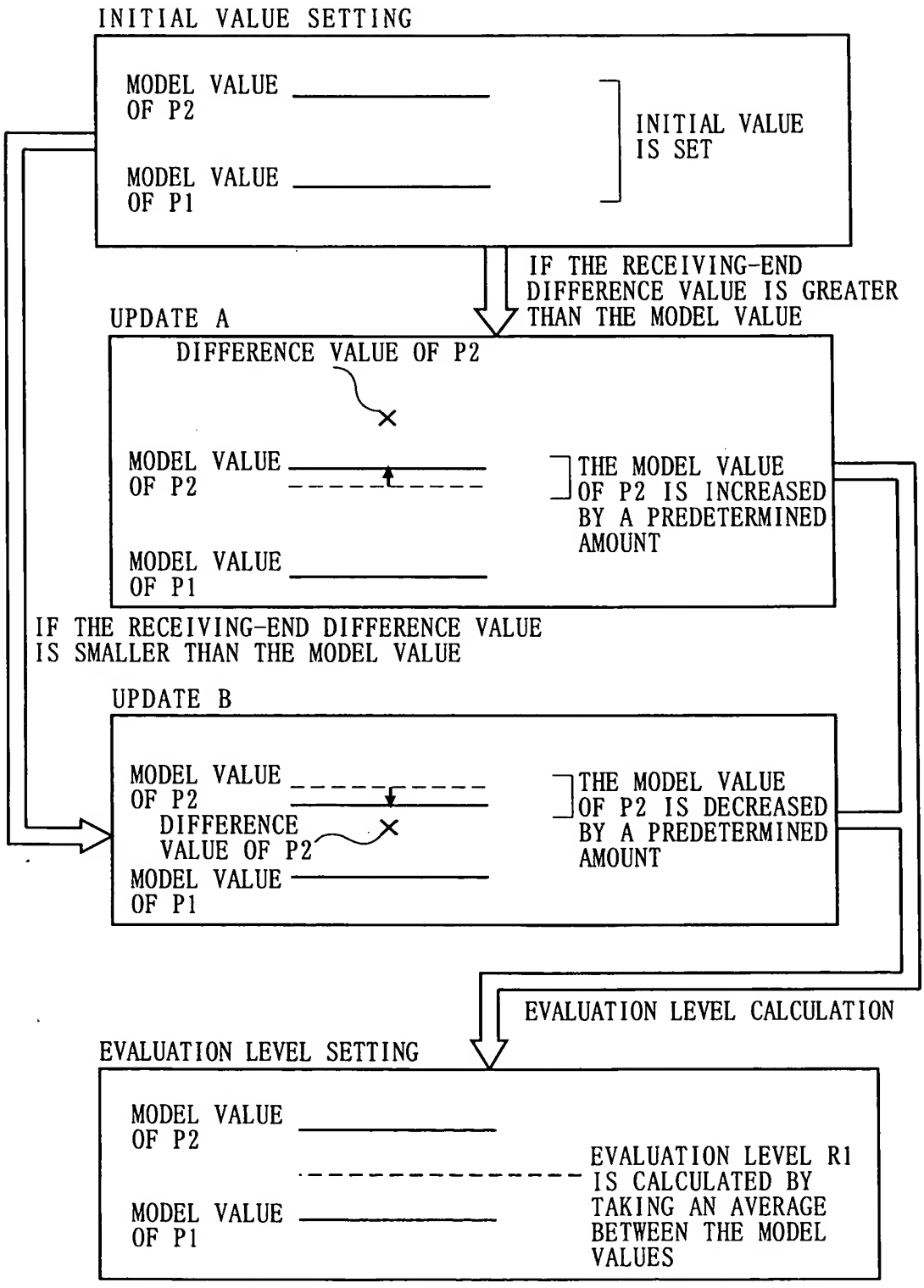
INITIAL VALUE SETTING
MODEL VALUE OF P2
MODEL VALUE OF P1
INITIAL VALUE IS SET
IF THE RECEIVING-END DIFFERENCE VALUE IS GREATER THAN THE MODEL VALUE
UPDATE A
DIFFERENCE VALUE OF P2
MODEL VALUE OF P2
MODEL VALUE OF P1
THE MODEL VALUE OF P2 IS INCREASED BY A PREDETERMINED AMOUNT
IF THE RECEIVING-END DIFFERENCE VALUE IS SMALLER THAN THE MODEL VALUE
UPDATE B
MODEL VALUE OF P2
DIFFERENCE VALUE OF P2
MODEL VALUE OF P1
THE MODEL VALUE OF P2 IS DECREASED BY A PREDETERMINED AMOUNT
EVALUATION LEVEL CALCULATION
EVALUATION LEVEL SETTING
MODEL VALUE OF P2
MODEL VALUE OF P1
EVALUATION LEVEL R1 IS CALCULATED BY TAKING AN AVERAGE BETWEEN THE MODEL VALUES

FIG. 15 PRIOR ART

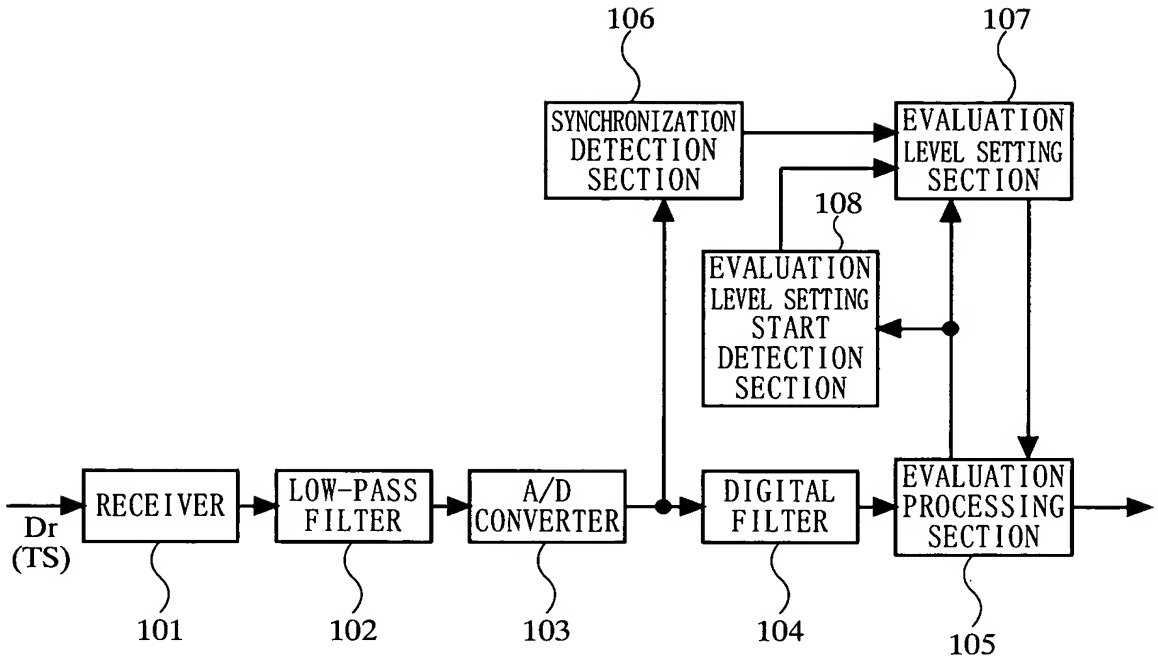

FIG. 16 PRIOR ART

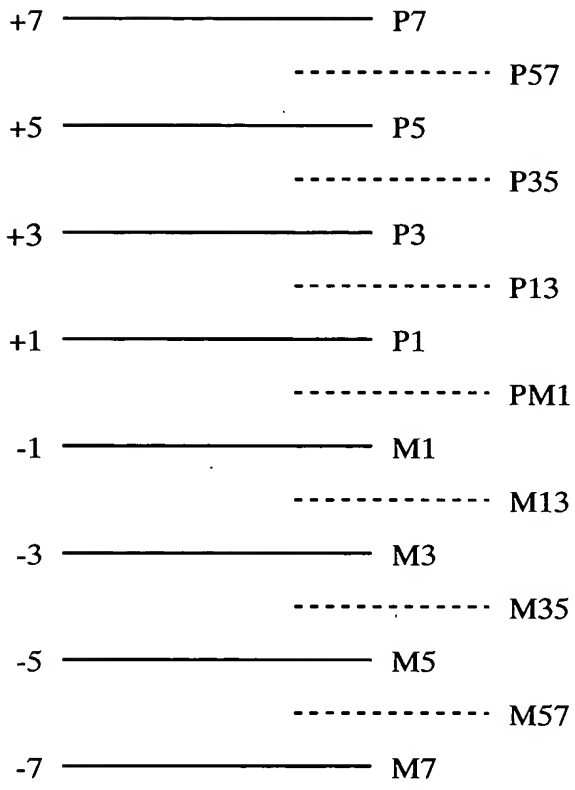

FIG. 17 PRIOR ART

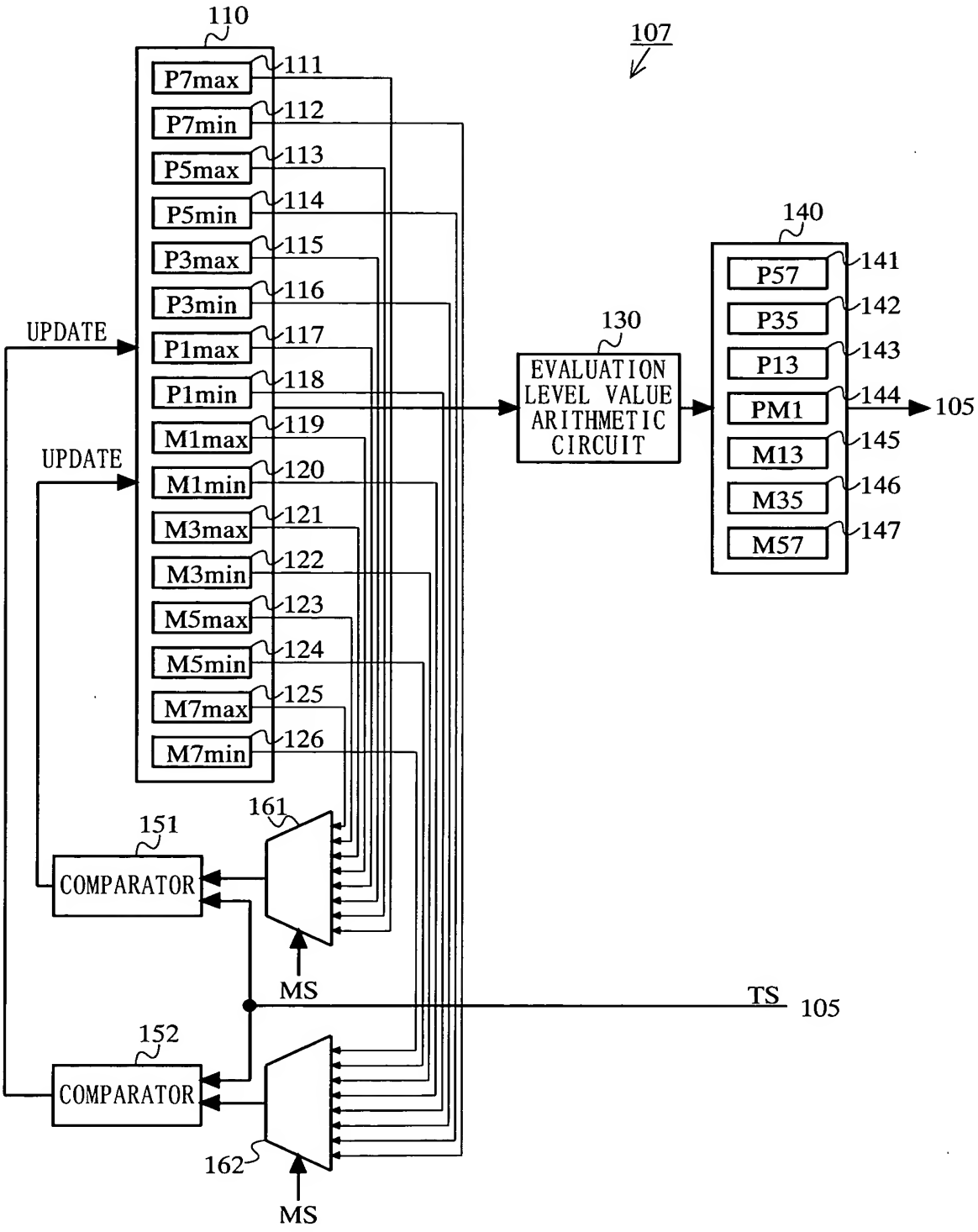

FIG. 18 PRIOR ART